Global STEM Awards Validation Criteria & Learning Framework

GLOBAL STEM AWARD

Elementary Level (Early Key Stage 2 - Recommended for Years 3 & 4 or ages 7 to 9 years)

Global STEM Awards Learning Categories and Objectives	Global STEM Awards Student Success Criteria
Bronze - complete 2 objectives in each category Silver - complete 3 objectives in each category Gold - complete 4 objectives in each category	What the children need to do to be successful in meeting the learning objective
Global Awareness & Geography: • Identification of location (land, space, or ocean/sea) • Physical geography/ location knowledge (some understanding/describing of land/location such as environment, rainforests etc) • Human geography (some understanding of the use of location due to geographical contexts/cultures within project) • Some location information applied to project	**Global Awareness & Geography:** • I know the location that my project is in (e.g., include maps/continent/solar system) • I have demonstrated an understanding of the location's natural features (e.g., mountains, rainforests, deserts, polar regions, ocean, and space) • I have included information on how the location is used (the use of land/marine/space location (e.g., town/countryside, farming/industry, space expedition/ocean exploration). • I can describe details of the location's features and challenges (e.g., climate, famine, living conditions, weather, clothing)
STEM Concepts: • Application of Maths, science, technology within project (e.g., showing how mathematical techniques are used in the real world) • Good description of STEM context/challenge within project • Outline of design or experiment (methodology) • Learning outcome identified (attempt to evaluate)	**STEM Concepts:** • I have identified the maths or science or technology to be used in my project • I have included aspects of Science, Maths, Engineering and Technology • I have explained my design or experiment (e.g., posters, models, design sketches) • I have outlined what I have learned and enjoyed about the project
Career Related Learning: • Linked career role has been identified • Description of linked career within project identified • Personal reflection - think about some of the personal skills used in this project and match them to key skills (outlined below) • Key skills - some understanding of the types of **STEM skills** required to enter the linked career roles or profiles linked to project (teamwork, problem solving, creativity, critical thinking, communication, maths, science, ICT/digital application). Use of the Skills Builder Framework may be applied here with reference to the **8 essential skills** within this framework: Listening, Speaking, Problem Solving, Creativity, Staying Positive, Aiming High, Leadership, Teamwork	**Career Related Learning:** • I have identified one job associated with my project • I have explained what this job involves, and the tools/equipment used • I can identify some of the skills I have used within this project and matched them to key skills • I have identified the skills necessary for a job/career associated with my project (e.g., teamwork, speaking, listening, problem solving)

Intermediate Level (Key Stage 2 - Recommended for Year 5 & 6 or ages 9-11 years)

Global STEM Awards Learning Categories and Objectives	Global STEM Awards Student Success Criteria
Bronze - complete 2 objectives in each category Silver - complete 3 objectives in each category Gold - complete 4 objectives in each category	What the children need to do to be successful in meeting the learning objective
Global Awareness & Geography: - Clear understanding of location (land, space, ocean/sea) knowledge applied to project - Physical geography (some understanding and details, describing of land feature such as environment, rainforests etc) - Human geography (some understanding and details, urban/rural, agricultural/industrial, space/marine exploration) - Place knowledge (some understanding and details of geographical contexts/cultures/features within project)	**Global Awareness & Geography:** - I can identify the location of my project - I have included information on physical geography (mountains, rainforests, deserts, oceans, and polar regions) - I have included information about land use (urban/rural, agricultural/industrial, space/marine exploration) - I can give examples of place knowledge (context, culture, and features) around my project
STEM Concepts: - Application of maths/science/technology within project (e.g., showing how mathematical techniques are used in the real world) - Clear description and understanding of STEM context/challenge within project - Explanation of design or experiment (methodology, diagrams etc) - Learning outcomes clearly identified and evaluated	**STEM Concepts:** - I have identified the maths/science/technology to be used in my project - I have included diagrams or details of the challenge and have linked it to STEM - I have explained my design or experiment (posters, model, design sketches etc) - I have presented the findings of my project
Career Related Learning: - Clear identification and description of linked career roles within this project - Personal reflection - think about the personal An explanation of key job roles (job description) - skills used in this project and match them to key skills (outlined below) - Key skills – a clear understanding of the types of **STEM skills** required to enter the linked career roles or profiles linked to project (teamwork, problem solving, creativity, critical thinking, communication, maths, science, ICT/digital application). Use of the Skills Builder Framework may be applied here with reference to the **8 essential skills** within this framework: Listening, Speaking, Problem Solving, Creativity, Staying Positive, Aiming High, Leadership, Teamwork	**Career Related Learning:** - I have included a description of at least one job in the place of my project - I can explain what this job involves, and the tools/equipment used - I can identify the skills I have used within this project and matched them to key skills - I have included the skills necessary for this job/career (e.g., teamwork, speaking, listening, problem solving) and identified which of these skills I am good at

Advanced Level (recommended for Key Stage 3 – ages 11-13 years)

Global STEM Awards Learning Categories and Objectives	Global STEM Awards Student Success Criteria
Bronze - complete 2 objectives in each category Silver - complete 3 objectives in each category Gold - complete 4 objectives in each category	What the children need to do to be successful in meeting the learning objective
Global Awareness: • Location (Global) knowledge applied • Place knowledge (some good understanding of geographical contexts as well as cultures/features) • Physical geography: some good understanding of location natural features/environment • Human geography (some good understanding and description of location use/physical geography such as location use etc)	**Global Awareness:** • I can explain the location of my project • I can describe the geography, context, culture and features around my project • I have identified and I have an understanding of the physical context of the location for my project • I have identified the human/social environmental context of the location of my project (e.g., how the area/location is used)
STEM Concepts: • Application of maths/science demonstrated within project (e.g., showing how mathematical techniques are used in the real world) • Clear description and good understanding of STEM concept/challenge within project • Demonstration of 'moral compass' within project (e.g., describing/reflecting on personal values, any ethical issues etc) • Project concluded and/or evaluated (methodology explained)	**STEM Concepts:** • I have given in-depth details of the specific techniques that this project involves (e.g., maths concepts, science investigation, technology/engineering principles) • I have identified the STEM challenges within my project • I have explained the rationale behind my project (personal values, ethical/moral/political issues) • I have presented my findings, drawn out a conclusion and evaluated my project (e.g., included diagrams, details of equipment, tools, statistics, and research)
Career Related Learning: • Identified 2 linked career roles and pathways/educational routes within project • Labour Market Information (some understanding of labour market information relating to career roles linked to project (e.g., salaries, demand for identified roles nationally or locally) • Personal reflection - applying a personal reflection on skills learned within project and aligning them to the key skills required within STEM-based careers • Key skills - understanding of the types of **STEM skills** required to enter the linked career roles or profiles linked to project (teamwork, problem solving, creativity, critical thinking, communication, maths, science, ICT/digital application). Use of the Skills Builder Framework may be applied here with reference to the **8 essential skills** within this framework: Listening, Speaking, Problem Solving, Creativity, Staying Positive, Aiming High, Leadership, Teamwork	**Career Related Learning:** • I have identified two career roles related to the project and possible pathways into these careers (e.g., entry requirements and progression) • I have explored the labour market information (salary, demand, local, national, and international) • I can identify the essential skills I have used within this project and my strengths that can be used in a STEM career • I have identified the essential skills necessary for the career and how they are used within the job

Higher Level – (recommended for Key Stage 4 or ages 14 -18 years)

Global STEM Awards Learning Categories and Objectives	Global STEM Awards Student Success Criteria
Bronze - complete 2 objectives in each category Silver - complete 3 objectives in each category Gold - complete 4 objectives in each category	What the children need to do to be successful in meeting the learning objective
Global Awareness: • Detailed locational knowledge applied • Place knowledge (clear description of geographical contexts as well as cultures/features) • Physical geography (clear understanding of location natural features/environment) • Human geography (clear understanding and describing of location use)	**Global Awareness:** • I can explain the location of my project in greater depth • I can describe the geography, context, culture and features clearly around my project • I have identified and I have a clear understanding of the physical context of the location for my project • I have identified and have a clear understanding of the human/social environmental context of the location of my project (e.g., how the area/location is used)
STEM Concepts: • Application of maths/science/technology demonstrated within project (e.g., showing how mathematical techniques are used in the real world) • Clear description and good understanding of STEM concept/challenge within project • Demonstration of 'moral compass' within project (e.g., describing/reflecting on personal values, any ethical issues etc) • Project concluded and critically evaluated (detailed methodology e.g., included diagrams, details of equipment, tools, statistics, and research)	**STEM Concepts:** • I have given in-depth details of the specific techniques that this project involves and identified where it can be used in the real world (e.g., maths concepts, science investigation, technology/engineering principles) • I have identified the STEM challenges in detail within my project • I have explained the rationale behind my project in detail (personal values, ethical/moral/political issues) • I have presented my findings, drawn out a conclusion and critically evaluated my project
Career Related Learning: • Identified at least 2 linked career roles and pathways/educational routes within project • Labour Market Information - clear understanding of labour market information relating to career roles linked to project (e.g., salaries, demand for identified roles nationally or locally including references to gender stereotyping) • Applied a personal reflection (and suitability to STEM careers) of the skills learned within project aligning them to the key skills required within STEM-based careers • Key skills - some understanding of the types of **STEM skills** required to enter the linked career roles or profiles linked to project (e.g., teamwork, problem solving, creativity, critical thinking, communication, maths, science, ICT/digital application). Use of the Skills Builder Framework may be applied here with reference to the **8 essential skills** within this framework: Listening, Speaking, Problem Solving, Creativity, Staying Positive, Aiming High, Leadership, Teamwork	**Career Related Learning:** • I have identified at least two contrasting career roles related to the project and possible pathways into these careers (e.g., entry requirements and progression) • I have explored the labour market information (salary demand, local, national and international) and discussed implications around gender stereotyping • I have identified the essential skills I have used within this project, evaluated my strengths and areas for development and referenced my suitability to particular STEM careers • I have identified the essential skills necessary for the careers and how they are used within each job

Platinum Level Global STEM Award

The Global STEM Platinum Award is aimed at Key Stage 4 and 5/ 15 to 18 year old learners to reward achievement in a comprehensive STEM focused project. Projects may be conducted independently or as part of a STEM Club and are required to include and demonstrate the following elements and learning outcomes:

GLOBAL STEM AWARD – PLATINUM LEVEL
Global Location:
• **Reference to and identification of a global location (for example: Europe, Asia, North America, South America, Australasia, Africa, Antarctica, Marine, Space). Specific country or area within global location must be included.**
• **Detailed locational knowledge applied to project - Place Knowledge (clear description of geographical contexts as well as cultures/features)**
• **Human and Physical Geography (clear understanding and describing of land use/physical geography such as rainforests etc)**
• **Methodology of project explained in depth**
STEM Context or challenge:
• **Challenge objectives may be set by industry or employer link or may be chosen by learner -eg research into an identified environmental issue or to develop a new design concept.**
• **Project needs to clearly show challenge objectives and show investigation methodology and research work (e.g field study) – and include either use of data, applied mathematics and/or science and/or design work**
• **Project to show demonstration of practical skills – e.g model making, graphic design, creating a website, piece of artwork, scientific experiment**
• **Problem solving skills highlighted within project – e.g showing analytical skills, producing evidence, interpreting data, demonstrating findings, evaluating processes,**
• **Project review – clear reference to project evaluation. Application of moral compass and reflective work**
Career Learning:
• **Learner demonstrates that they have taken on a STEM role within the project and shows an understanding of one or more roles**
• **A understanding of entry routes of identified STEM career roles as part of project**
• **Personal reflection on STEM role that learner has undertaken**
• **Highlighting and evidencing key skills used and developed within the project (Listening, Speaking, Problem Solving, Creativity, Staying Positive, Aiming High, Leadership, Teamwork)**

Completed project work must be presented and pitched to either the employer or organisation that set the context/challenge for the project or to the supervising leader/mentor.